

ASHRAE TC 4.5
Fenestration
U-Factor Subcommittee Meeting
Minutes

Monday, June 25, 2001 – Cincinnati

Chair: Francois Dubrous
Secretary: John Wright

Attendees:	Francois Dubrous	(NRCan)
	John Wright	(University of Waterloo)
	Steve Harrison	(Queen's University)
	Anil Parekh	(NRCan)
	Hakim Elmahdy	(NRC)
	Arild Gustavsen	(Norwegian U. of Science and Technology)
	Christian Kohler	(LBNL)
	Marcia Falke	(Keystone Certifications Inc.)
	Willie DuPont	(LBNL)
	Robert Busby	(Kalwall Corp)
	Jason Theios	(Guardian)
	Davit Tait	(Tait Solar)
	Dariush Arasteh	(LBNL)
	Joe Klems	(LBNL)
	John Hogan	(City of Seattle)

Action Items

Francois Dubrous – will present information regarding curtain wall issues to the U-factor Subcommittee at the next ASHRAE meeting.
Willie Dupont/Marcia Falke – present an update of NFRC activities pertaining to U-factor (e.g., properties, attachments)
Dragan Curcija – will present an update of HOF needs regarding U-factor

Minutes

Minutes from the previous U-factor Subcommittee meeting (Atlanta) were not available and, therefore, were not approved. The minutes from two meetings will be presented for approval at the next meeting (Atlantic City).

Tubular Skylights

Steve Harrison made a brief presentation regarding the work he has undertaken related to tubular skylights. He described a hotbox that was designed for this purpose and pointed out that the critical mode of operation is the winter nighttime condition where the device is being

heated from below. In this case the heat loss can be reduced substantially by double-glazing the lower cover (i.e., the light diffuser). Steve Harrison also circulated copies of a Research Topic Acceptance Request (RTAR) entitled, "Thermal and Optical Analysis of Cylindrical Skylights", that will allow this work to be continued.

Marcia Falke mentioned that the NFRC is seeking a method by which tubular skylights can be characterized.

Willie DuPont pointed out that standard conditions for the attic space must be established unlike the more conventional situation for windows where only the indoor/outdoor conditions must be specified.

Conductivity/References

Questions were raised regarding the need for an updated set of thermal conductivity and emissivity data for use in window simulation.

It was mentioned that NFRC is trying to set up a procedure by which more reliable and consistent sets of data can be compiled. It was pointed out that manufacturers will have the option of using data that have been established either through peer review or through measurement in accordance with accepted procedure(s). There is a consensus that material density should be reported in conjunction with values of thermal conductivity. NFRC will be asked to report on their activity at the next ASHRAE meeting.

It was also mentioned that conductivity data will also be available with the ISO 15099 standards when it is finalized.

Handbook

Dragan Curcija (Chair Handbook Subcommittee) was not present to comment on this topic.

John Hogan mentioned that the handbook is missing data regarding glass block, domed skylights, garage doors, etc.

NFRC is trying to assemble information and models on window attachments.

John Hogan also mentioned that the Handbook of Fundamentals (and other handbooks presumably) will soon be maintained and distributed electronically so that updates will be made on a continuous basis rather than at four-year intervals.

Commercial Buildings

The issue of convection in very tall framing cavities was raised. There was uncertainty as to whether vertical cavities extend for more than one storey but Brian Crooks and Robert Busby assured the group that, in the vast majority of cases, they do not. It was also the feeling of many of those present that frame-design is an area of very active innovation.

Research Needs

Research needs related to U-factor were identified. These included (1) surface convection coefficients (pursued by Dragan Curcija), (2) rollup doors, revolving doors, etc. (Dragan Curcija, John Hogan have already prepared and "sent up" the paperwork), (3) long-term performance regarding U-factor, leakage, etc. (Bipin Shah needs to prepare RTAR) and (4) tubular skylights (Steve Harrison has already prepared the RTAR).